

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 8, 9C, 9E, and 9F. These sheets, which include Figs. 1-14, replace the original sheets including Figs. 1-14.

Attachment: 17 Replacement Sheets Figs. 1-14.

REMARKS

Claims 1-18 are pending.

The applicants appreciate the time and courtesy of the Examiner during a telephone conference with the undersigned attorney on August 2, 2005. The telephone conference enabled the applicants to notice that a mistake made in formalizing Figures 9E and 9F seems to have caused a misunderstanding of the invention and a blurring of the distinctions between the claimed invention and the prior art. The present amendment corrects the mistake as discussed in more detail below.

The Examiner objected to drawings under 37 CFR 1.83(a) for failing to show the limitation "the contact region directly contacting the heterostructure alloy of the second conducting region in the heterostructure alloy region" of claim 1. Figures 9E and 9F are being amended to show that the emitter contact 9 directly contacts the emitter region 4, which is made of a heterostructure alloy. Such a change returns Figures 9E and 9F to their original form as presented with parent application 09/724,563 filed on November 27, 2000, grandparent application 09/087,398 filed on May 29, 1998, and the priority EP application no. 97830259 filed on May 30, 1997. In addition, the change is consistent with the specification, which states that the dielectric layer 12' is etched in the window 10 and the emitter region 4 is overlaid with the emitter contact 9 (for example, page 13, lines 1-13 of substitute specification. Thus, no new matter has been added and the structure of claim 1 is properly shown in the drawings.

The Examiner also objected to the drawings because reference characters 12 and 12' both point to the same dielectric layer in Figure 9C. Figure 9C is being amended to remove the "12."

Figure 8 was objected to for failing to be designated with a legend such as -Prior Art-. Figure 8 is being amended to include the "Prior Art" legend.

Claims 1-7 were rejected under 35 U.S.C. 102(b) as being anticipated by admitted prior art in Figures 1-8 ("APA").

The APA does not disclose the invention recited in claim 1. Claim 1 recites, *inter alia*, "A contact region ... comprised of the first semiconductor material, the contact region directly contacting the heterostructure alloy" The APA does not teach or suggest a contact

region **directly contacting** the heterostructure. Figure 8 shows a germanium layer 90 that separates the contact region 7 from the emitter 4. It should be emphasized that Figure 8 is an enlarged detail view of the emitter 4 and base 3 regions shown in Figures 1 and 3F (see column 10, lines 14-15 of substitute specification). As a result, contact layer 7 is not in direct contact with the heterostructure emitter region 4. Therefore, claim 1 is not anticipated by the APA and is allowable.

The Examiner's response asserts that there are no structural differences between the claimed invention and the APA and that the only differences are process differences. In particular, the Examiner continues to point to Figure 1 as showing direct contact between the emitter contact 9 and the emitter region 4. However, as pointed out above, the specification clearly indicates that Figure 8 is a close-up view of Figure 1 and Figure 8 shows a pure germanium layer 90 intervening between the emitter contact 9 and the emitter region 4. The germanium layer is not a heterostructure alloy, and thus, there is no direct contact between the emitter contact 9 and a heterostructure alloy region. The lack of direct contact between the contact 9 and region 4 in the device of Figures 1 and 8 is certainly a structural difference rather than a process difference.

Claims 2-7 are allowable because they depend from claim 1 which is allowable for the reasons presented above. In addition, claim 2 recites that a first dielectric layer directly contacts the heterostructure alloy. Figure 8 shows that the prior art structure includes the germanium layer 90 intervening between the first dielectric layer 12 and the heterostructure alloy of the base 3. As a result, the APA does not disclose a dielectric layer that directly contacts the heterostructure alloy. Therefore, claim 2 is allowable apart from its dependence on claim 1.

The Examiner has rejected claims 8-13 under 35 U.S.C. 102(b) as being anticipated by the APA.

The APA does not disclose the invention recited in claim 8. Claim 8 recites a transistor that includes "a first dielectric layer positioned on, and directly contacting, the heterostructure alloy region." As discussed above with respect to claim 2, Figure 8 shows that in the APA device the dielectric layer 12 does not directly contact the heterostructure alloy base 3.

Instead, the germanium layer 90 prevents such direct contact. Therefore, claim 8, is not anticipated by the APA.

Claims 9-13 are allowable because they depend from claim 8, which is allowable for the reasons presented above.

The Examiner rejected claims 14-18 under U.S.C. 102(b) as being anticipated by APA.

The APA does not disclose the invention recited in claim 14. Claim 14 is directed to a transistor formed by a process that includes "forming by chemical vapor deposition a first dielectric layer of silicon dioxide on the substrate" As explained on pages 12-13 of the application, forming a first dielectric layer by chemical vapor deposition of silicon dioxide on a substrate in which a silicon/germanium alloy is formed, results in a product in which the first dielectric layer contacts the silicon/germanium alloy. As discussed above, the APA does not disclose such a product. Instead, the APA thermally grows the dielectric layer 12, which causes the germanium layer 90 to be formed between the dielectric layer 12 and the heterostructure alloy of the base 3. As such, the product formed by the APA is not the same product that is recited in claim 14. Accordingly, claim 14 is not anticipated by the APA.

Claims 15-18 are allowable because they depend from claim 14 which is allowable for the reasons presented above.

The applicants firmly believe that all of the pending claims are structurally different from the prior art of Figures 1-8 and are fully supported by the specification and Figures. If there are any remaining issues to be resolved, the applicants request the Examiner to contact the undersigned attorney for a telephone conference.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Application No. 10/615,084
Reply to Office Action dated May 19, 2005

All of the claims remaining in the application are now clearly allowable.
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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RXI:lmr

Enclosure:

Postcard

17 Sheet(s) of Drawings (Figures. 1-14)

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